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# FEE TRANSMITTAL

## For FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 500.

**Complete if Known**

Application Number	09/927,009
Filing Date	08/09/2001
First Named Inventor	Pankaj Vinubhai Shah
Examiner Name	John L. Goff, II
Art Unit	1733
Attorney Docket No.	A01098A

**METHOD OF PAYMENT** (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_☒ Deposit Account Deposit Account Number: 18-1850 Deposit Account Name: Rohm and Haas Company

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17☒ Credit any overpayments

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**FEE CALCULATION** (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES****Fee Description**

Each claim over 20 (including Reissues)

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
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\_\_\_\_\_ - 20 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
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\_\_\_\_\_ - 3 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee (\$)	Fee Paid (\$)

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
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\_\_\_\_\_ - 100 = \_\_\_\_\_ / 50 = \_\_\_\_\_ (round up to a whole number) x \_\_\_\_\_ = \_\_\_\_\_

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Appeal Brief Fee

Fees Paid (\$)

\$500.

**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent) 45,916	Telephone (215) 619-5478
Name (Print/Type)	STEPHEN E. JOHNSON	Date 02/01/2006	

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Group Art Unit: 1733  
Appeal No. \_\_\_\_\_

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS AND INTERFERENCES



APPELLANTS' BRIEF

PANKAJ VINUBHAI SHAH

Application for Patent Filed August 9, 2001

Serial No. 09/927,009

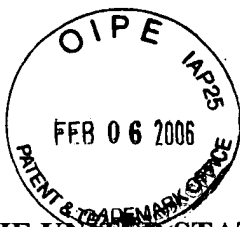
**METHOD FOR FORMING A HOT MELT ADHESIVE**

**J. L. Goff II**  
Examiner

**Stephen E. Johnson**  
Agent for Appellants

Enclosed:  
Original + two copies  
Filing Fee via Deposit Account Form (in duplicate)  
Certificate of Mailing  
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**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

**DN A01098A**

In re application of: Pankaj Vinubhai Shah

Serial No.: 09/927,009 : Group Art Unit: 1733

Filed: August 9, 2001 : Examiner: John L. Goff II

For: METHOD FOR FORMING A HOT MELT ADHESIVE

Honorable Commissioner for Patents  
Alexandria, VA 22313-1450

**BRIEF FOR APPELLANTS**

This is an appeal from the Final Office Action dated August 30, 2005, rejecting claims 1-4 of the above-identified Application. Appellant filed a Notice of Appeal pursuant to 37 C.F.R. §1.191 on November 30, 2005.

An authorization in duplicate is enclosed with this Appeal Brief to charge payment to Deposit Account 18-1850 for the filing fee of the Appeal Brief pursuant to 37 C.F.R. §1.17 (c).

**REAL PARTY IN INTEREST [37 C.F.R. §1.192 (c)(1)]**

The real party in interest is assignee, namely Rohm and Haas Company, 100 Independence Mall West, Philadelphia, PA 19106-2399.

**RELATED APPEALS AND INTERFERENCES [37 C.F.R. §1.192 (c)(2)]**

There are no other appeals or interferences known to Appellants, the Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **STATUS OF CLAIMS [37 C.F.R. §1.192 (c)(3)]**

The status of the claims is as follows:

Allowed claims	-	None
Claims objected to	-	None
Claims canceled	-	None
Claims pending	-	1-4
Claims rejected	-	1-4
Claims on appeal	-	1-4

### **STATUS OF AMENDMENTS [37 C.F.R. §1.192 (c)(4)]**

Attached hereto is a copy of the claims as currently pending (**Appendix A**).

### **SUMMARY OF INVENTION [37 C.F.R. §1.192 (c)(5)]**

Appellant's invention discloses a solution to a problem faced by the inventor regarding hot melt adhesives. Hot melt adhesives are desirable for their quick setting and for the absence of aqueous or solvent media which provide fluidity to other types of adhesives. The problem faced by the inventor regarding hot melt adhesives is the provision of an alternative method for forming a moisture reactive hot melt adhesive that combines both polyester and, optionally, lower cost polyether precursors in a single efficacious composition which functions as a pressure sensitive adhesive before curing and as a strong bonding adhesive after moisture cure. Preferably the process may be effected in a sequential manner in a single reactor.

Appellant claims:

A method for forming a moisture reactive hot melt adhesive comprising

- a) forming a hydroxyl-functional pre-polymer by reacting first components comprising a polyol selected from the group consisting of polyether polyols, polyester polyols, and mixtures thereof, said polyol having a weight average molecular weight less than 2,000; and a polyisocyanate, the ratio of OH/NCO groups of said first components on an equivalents basis being from 1.05 to 3.0;

- b) admixing second components comprising said hydroxyl-functional pre-polymer, a polyol selected from the group consisting of polyether polyols, polyester polyols, and mixtures thereof, and a polyisocyanate, the weight ratio of said hydroxyl-functional pre-polymer to said polyol being from 9/1 to 1/9, and the ratio of NCO/OH groups of said second components on an equivalents basis being from 1.5 to 2.2; and
- c) reacting, or allowing to react, said admixture (claim 1); wherein said second components comprise said hydroxyl-functional pre-polymer, a crystalline polyester polyol, and a polyisocyanate, the weight ratio of said hydroxyl-functional pre-polymer to said polyol being from 9/1 to 1/9, and the ratio of NCO/OH groups of said second components on an equivalents basis being from 1.5 to 2.2 (claim 2).

Appellant also claims (claim 3) a moisture reactive hot melt adhesive formed by the method of claim 1 or claim 2 and (claim 4) a method for bonding substrates including the step of: forming a moisture reactive hot melt adhesive by the method of claim 1 or claim 2.

#### **ISSUES [37 C.F.R. §1.192 (c)(6)]**

The first issue is whether Appellant's claimed invention as laid out in claims 1 and 3 is unpatentable under 35 U.S.C. § 103 (a) over U. S. Patent No. 5,194,487 to Jacobs ("Jacobs"). A second issue is whether Appellant's claimed invention as laid out in claims 2 and 3 and as applied to claims 1 and 3 is unpatentable under 35 U.S.C. § 103 (a) over Jacobs in view of U. S. Patent No. 6,365,700 to Graham ("Graham"). A third issue is whether Appellant's claimed invention as laid out in claim 4 and as applied to claims 1 and 3 is unpatentable under 35 U.S.C. § 103 (a) over Jacobs and Graham further in view of U. S. Patent No. 5,162,457 to Hansel et al. ("Hansel").

#### **GROUPING OF CLAIMS [37 C.F.R. §1.192 (c)(7)]**

Appellants' claims should be grouped as follows:

- (I) Claims 1-4 stand or fall together.

## **(I) ARGUMENT [37 C.F.R. §1.192 (c)(8)]**

### **The Rejection**

Claims 1 and 3 stand finally rejected as unpatentable under 35 U.S.C. § 103 (a) over U. S. Patent No. 5,194,487 to Jacobs (“Jacobs”). Claims 2 and 3 stand finally rejected as unpatentable under 35 U.S.C. § 103 (a) over Jacobs in view of U. S. Patent No. 6,365,700 to Graham (“Graham”) and as applied to claims 1 and 3. Claim 4 stand finally rejected as unpatentable under 35 U.S.C. § 103 (a) over Jacobs and Graham further in view of U. S. Patent No. 5,162,457 to Hansel et al. (“Hansel”) and as applied to claims 1 and 3.

### **Examiner’s Argument**

Examiner asserts that a two-component aqueous polyurethane dispersion with reduced solvent content used to prepare a coating with improved high gloss renders obvious Appellant’s method for making a hot met adhesive. Examiner further asserts that that values for the two components of Jacobs aqueous high gloss coating share features and numerical limitations which overlap with Appellant’s method of making a hot melt adhesive and that it would have been obvious by persons having ordinary skill in the art to take an aqueous dispersion for a high gloss coating to perform routine experimentation and achieve Appellant’s hot melt adhesive.

Secondly, Examiner asserts Jacobs as applied above teaches most of the limitations in claims 2 and 3, except for a specific teaching of using crystalline polyester polyol as the polyol of the second components and needs to resort to relying on a disclosure of Graham to achieve Appellant’s invention as claimed in claims 2 and 3.

Thirdly, Examiner asserts that Jacobs and Graham teach most of the limitations of claim 4, except for a specific teaching of applying the moisture reactive adhesive as a hot melt and using it as a bonding agent and needs to further resort to relying on the teaching of Hansel to achieve Appellant’s invention as claimed in claim 4.

### **Reference Relied on by Examiner**

Jacobs discloses a two-component aqueous polyurethane dispersion with reduced solvent content used to prepare a coating with improved high gloss. Component I is an a) isocyanate-reactive composition containing an aqueously dispersed polyurethane that has an average hydroxy functionality of at least 1.8, a total content of urethane and urea groups of 9 to 20% by weight, anionic groups, ethylene oxide units to maintain the polyurethane stably dispersed in water and b) 5 to 20% based on the weight of components I and II, of a polyol which has a molecular weight of 62 to 1000 and may contain ether groups and Component II is a water dispersible polyisocyanate having a isocyanate content of 2 to 30%, an average functionality of at least 1.8, anionic groups, ethylene oxide units to maintain the polyurethane stably dispersed in water and components I and II are present in an amount sufficient to provide an equivalent ratio of isocyanate groups to hydroxy groups of 0.81:1 to 4:1.

Graham discloses a high green strength reactive hot melt adhesive by pre-polymerization of a certain polyester and a di- or poly isocyanate to form a hydroxy terminated pre-polymer that is reacted with additional di- or poly isocyanate or optional polyols to produce a reactive hot melt adhesive.

Hansel discloses crystalline, isocyanate group containing hot melt adhesives based on from 70-95% by weight of pre-polymer A based on polyester diols having a molecular weight of from 1,500 to 10,000 and melting points of from 50° to 90° C and diisocyanates in a ratio of isocyanate groups of the diisocyanates to the hydroxyl groups of the polyester diol of from 3:1 to 1.2:1 and from 5-30% by weight of a component B having a molecular weight of from 1,000 to 10,000 and melting points of from 60° to 150° C, in which component B contains at most 0.5 Zerewitnow active groups per molecule.

### **Rejection under 35 U.S.C. 103 (a)**

Appellants disagree with Examiner's rejection of claims 1-4. Appellant traverses, maintaining the Examiner has not met his burden with regard to determinations under 35 U.S.C. §103(a); M.P.E.P. §706.02(j) and M.P.E.P. §2143-2143.03; namely 2143.01, 2143.03. The reference or combination of references cited must teach every aspect of the claimed invention either explicitly or implicitly to a person of ordinary skill in the art and the Examiner must

establish a clear motivation to combine such references. Appellants submit the Examiner has not carried the burden of establishing *prima facie* obviousness of the invention recited in any of the Appellants claims.

### 35 USC 103(a) Rejection of Claims 1 and 3

Examiner relies on Jacobs, a patent that does not disclose, teach or suggest hot melt adhesives, yet discloses a two-component aqueous polyurethane dispersion with reduced solvent content used to prepare a coating with improved high gloss. An aqueous high gloss coating is not a reactive hot melt adhesive. An aqueous high gloss coating cannot function as a reactive hot melt adhesive. The former provides a protective coating, while the latter bonds substrates together. Examiner incorrectly equates a high gloss coating with a hot melt adhesive by reciting a two component aqueous coating, each component having four sub-components, selectively picking out polyols, polyisocyanates, yet concedes that it still does not teach all elements of Appellant's claimed invention. There is no motivation to make such a nexus between an aqueous coating and a hot melt adhesive. This is contrary to what an artisan of ordinary skill would do. Without any motivation, the skilled artisan would not take an aqueous polymer that is used to prepare a high gloss coating, an aqueous polymer whose isocyanates components react adversely with water, and use it to prepare an adhesive. Jacobs components are necessary to produce a high gloss protective coating but there is no teaching, disclosure or suggestion whatsoever that the same components could be used to prepare a reactive hot melt adhesive. Reactive hot melt adhesives are desirable for their quick setting and for the absence of aqueous or solvent media which provide fluidity to other types of adhesives. Appellant further asserts there is no motivation by a person of ordinary skill in the art to combine the teaching of Jacob with Graham or Hansel.

### 35 USC 103(a) Rejection of Claims 2 and 3

Examiner rejected claims 2 and 3 as being obvious over Jacobs in view of Graham. Appellant again traverses, maintaining the Examiner has not met his burden with regard to determinations under 35 U.S.C. §103(a); M.P.E.P. §706.02(j) and M.P.E.P. §2143-2143.03;



namely 2143.01, 2143.03. Examiners assertion that it would have been obvious to person of ordinary skill in the art at the time the invention was made to utilize Jacobs teaching of a two-component aqueous polyurethane dispersion with reduced solvent content used to prepare a coating with improved high gloss with the teaching of Graham has no merit. There is no motivation to combine a patent disclosing a high gloss coating and combining it with the teaching of a polyol taught in Graham to provide a reactive hot melt adhesive. This is contrary to what a skilled artisan would do. The examiner points to certain common elements in Jacobs and certain common elements in Graham but concedes that neither Jacobs nor Graham teaches every element of Appellant's invention as claimed. Jacobs and Graham, alone or in combination do not disclose admixing second components including the hydroxy functional pre-polymer, a crystalline polyester polyol, and an isocyanate, the weight ratio of the hydroxyl-functional pre-polymer to the polyol being from 9/1 to 1/9. Neither does Jacobs or Graham teach or suggest changing the ratio of pre-polymer to second component at all and particularly not to the range of ratios claimed by Appellant. The teachings of Jacobs and Graham are contradictory, regarding the polyol component. Jacobs teaches molecular weights of polyols from 400 to 6000. Graham discloses molecular weight of from 2,000 to 15,000 but states that "if a lower molecular weight hydroxyl terminated polyester is used, i.e. one with a molecular weight of 3,600...the viscosity of the resulting pre-polymer is too high for efficient mixing..." (Graham, page 4, lines 19-22). Graham therefore points out the inapplicability of a first component polyol molecular weight of 3,600 to Grahams own method or to the teaching of Jacobs method. Examiner did not consider the complete teaches of Jacobs and Graham which is completely lacking with regard to motivation to combine references.

#### 35 USC 103(a) Rejection of Claim 4

Examiner rejected claim 4 as unpatentable under 35 U.S.C. § 103 (a) over Jacobs and Graham further in view of U. S. Patent No. 5,162,457 to Hansel et al. ("Hansel") and as applied to claims 1 and 3. Appellant again traverses, *inter alia*, maintaining the Examiner has not met his burden with regard to determinations under 35 U.S.C. §103(a); M.P.E.P. §706.02(j) and M.P.E.P. §2143-2143.03; namely 2143.01, 2143.03. Examiners assertion that Jacobs and Graham teach most of the limitations of claim 4, except for a specific teaching of applying the

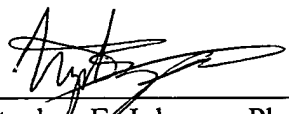
moisture reactive adhesive as a hot melt and using it as a bonding agent and then relying on yet a third patent (Hansel) disclosing a different hot melt adhesive is without merit. There is no motivation for a person of ordinary skill in the art at the time the invention was made to utilize Jacobs teaching of a two-component aqueous polyurethane dispersion with reduced solvent content used to prepare a coating with improved high gloss, modify it with the teaching of Graham and further modify it with a different hot melt adhesive (Hansel). Yet after all this, Examiner still does not teach each and every element of Appellants invention as claimed. Moreover Examiner has conceded in claims 1-3, that the combination of Jacobs and Graham do not teach each and every element of claim 1 and dependent claims 2 and 3. The combined teachings of Jacobs and Graham cannot be further perfected by Hansel to teach or suggest each and every element of claim 4. Finally, the teachings of Graham and Hansel contradict each other with regard to pre-polymer components, including the molecular weight of a polyol component. Examiner did not consider the complete teachings of Jacobs and Graham and Hansel which is further lacking with regard to a motivation to combine all references.

## Conclusion

Appellant respectfully submits that the present invention as defined in Claims 1-4 is patentable over Jacobs, Graham and Hansel of record. Appellant has made every reasonable attempt to resolve all issues with Examiner, including an interview with the Examiner pursuant to 37 C.F.R. §1.133 on February 23, 2005 of record. Accordingly, Appellants submit that the Examiner has failed to establish a *prima facie* case of obviousness in view of the differences between Appellants' claimed invention and the prior art, particularly with the use of Jacobs which is lacking on its own teachings as well as lacking in motivation to be combined with Graham or Hansel. Therefore, Appellants request a decision on the merits of Appellant's invention that reverses Examiners final rejection of claims 1-4 pursuant to 35 USC §103(a) and enters a Notice of Allowance. The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayments to Deposit Account 18-1850.

Respectfully submitted,

Rohm and Haas Company  
Patent Department  
100 Independence Mall West  
Philadelphia, PA 19106-2399  
Date: February 1, 2006

  
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**Appendix A: Claims Involved In The Appeal [37 C.F.R. §1.192 (c)(9)]**

1. A method for forming a moisture reactive hot melt adhesive comprising
  - a) forming a hydroxyl-functional prepolymer by reacting first components comprising a polyol selected from the group consisting of polyether polyols, polyester polyols, and mixtures thereof, said polyol having a weight average molecular weight less than 2,000; and a polyisocyanate, the ratio of OH/NCO groups of said first components on an equivalents basis being from 1.05 to 3.0;
  - b) admixing second components comprising said hydroxyl-functional prepolymer, a polyol selected from the group consisting of polyether polyols, polyester polyols, and mixtures thereof, and a polyisocyanate, the weight ratio of said hydroxyl-functional prepolymer to said polyol being from 9/1 to 1/9, and the ratio of NCO/OH groups of said second components on an equivalents basis being from 1.5 to 2.2; and
  - c) reacting, or allowing to react, said admixture.
2. The method of claim 1 wherein said second components comprise said hydroxyl-functional prepolymer, a crystalline polyester polyol, and a polyisocyanate, the weight ratio of said hydroxyl-functional prepolymer to said polyol being from 9/1 to 1/9, and the ratio of NCO/OH groups of said second components on an equivalents basis being from 1.5 to 2.2.
3. A moisture reactive hot melt adhesive formed by the method of claim 1 or claim 2.
4. A method for bonding substrates comprising
  - forming a moisture reactive hot melt adhesive by the method of claim 1 or claim 2;
  - heating said hot melt adhesive to a temperature of 90 °C to 140 °C ;
  - applying said heated hot melt adhesive to a first substrate in the presence of moisture;

contacting said applied heated hot melt adhesive with a second substrate; and cooling, or allowing to cool, said adhesive.